

pertinent references. Two appendices in the back of the book list all the taxa (generally to family level) known from Mexican and Dominican amber (lists for Baltic amber have appeared elsewhere). This taxon-based section of the book is well illustrated with high quality photographs of the organisms; the eight color plates are particularly striking. Poinar's stated goal is to inform researchers of relevant organisms in amber and to encourage these scientists to incorporate these specimens into their systematic and biogeographic studies, and this book is successful in presenting the information.

The last section (about 30 pages) concerns amber inclusions in discussions of paleosymbiosis, extinction, biogeography and prospects for molecular studies. Of some disappointment to me is the section entitled "Reconstructing Ancient Landscapes," a mere two pages of very general information. This again may reflect upon the lack of information published on the subject, and the difficulties of utilizing any particular deposit of amber as a meaningful sample of the ecology of that time period.

The book *Les fantomes de l'ambre* delves deeply into the largest deposits of amber, those of the Baltic region, and was produced as a companion volume to the exhibit of the same name presently on display at the Musée d'histoire naturelle in Neuchâtel, Switzerland. Although the text is in French, which will, unfortunately, reduce its audience here in the States, this book is visually beautiful, profusely illustrated with magnificent colored photographs interspersed with attractive line illustrations which transcend any language. The first chapter, by Haenni and Dufour, details the history of Baltic amber and man (which one finds out extends at least back to Neolithic times), and also discussed the continuing use of amber in art, industry, and medicine. A well illustrated section shows how the amber is found and mined. The remainder of the book, by the Krzeminskis, details the formation of the Baltic deposits, characteristics of amber, and its inclusions; the taxa are discussed in general ecological groups such as predators, parasites and aquatic insects. As a dipterist myself, one fact jumped out at me: of the Baltic amber inclusions, about 90% are insects, and 70% of these are Diptera! Concluding the book is a small section discussing preparation of amber for scientific study and on conservation.

For anyone interested in amber, or insect fossils in general, I highly recommend both of these very attractive, informative books.

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## SOCIETY MEETING OF FEBRUARY 24, 1993

### SOME OTHER INTERESTING THINGS YOU CAN DO WITH GENITALIA (LEPIDOPTERA: HESPERIIDAE)

John M. Burns  
Smithsonian Institution, Washington, D.C.

The February meeting marked the opening of the 134th year of the Society, and the night's presentation reflected the Society's long history and concentration in evolutionary and systematic research—punctuated with witty and entertaining poems on biological themes. Dr. John M. Burns, well known for his many publications on the systematics of skipper butterflies, is also a published poet. His works have appeared in such journals as *Nature*, *Perspectives in Biology and Medicine*, and *The Bulletin of the Entomological Society of America* and have been collected in a book called *BioGraffiti: A Natural Selection* (published by W. W. Norton).

Although the male genitalia of skippers had been studied and illustrated by some early lepidopterists (most notably Skinner and Williams in the 1920's while at the Academy of Natural Sciences), neither they nor their immediate successors fully grasped the significance of these complex structures for understanding skipper evolution. Dr. Burns's talk centered on North American skippers and showed with numerous examples how a careful study of the genitalia in both sexes can promote a fine scale understanding of geographic variation, speciation mechanisms, and higher level groupings, as well as overall better taxonomy.

Working initially with American species of the genus *Erynnis* (dusky-wing skippers), which are individually narrow in their choice of larval food but collectively diverse, Dr. Burns set out to find evidence of sympatric speciation. However, using various biologic and morphologic characters (especially ones drawn from the remarkably asymmetric male and female genitalia), he arranged these skippers in group after group of closely related, geographically complementary forms reflecting allopatric speciation. In addition Burns found that a striking white fringe on the hindwing evolved eight times independently with the genus, always in those differentiates (species or subspecies) occurring in the American Southwest and/or Mexico.

A 1936 monograph on *Autochton cellus* (the gold-banded skipper) pronounced it "unusually uniform in its characters . . . throughout its range." Because this is a widespread skipper (Pennsylvania to El Salvador) with a large gap in the middle of its range, Burns predicted—and then used male and female genitalic characters to demonstrate—allopatric differentiation, nearly to the point of speciation. Detailed geographic and genitalic analyses of pairs of so-called subspecies showed, in *Atrytonopsis*, that *ovinia* and *edwardsi* are actually separate sister species, closely allopatric and therefore best grouped in a superspecies; and, in *Wallengrenia*, that *otho* and *egeremet* are really very distinct species, differing considerably in range but broadly sympatric in the southeastern United States, where they are also synchronic.

When critically studied and compared, genitalia are every bit as valuable for grouping related species in higher categories like genera and generic groups as they are for distinguishing species. In recent years Burns has been genitally reviewing Nearctic hesperiine skippers, a well-studied fauna whose long-stable genera are gaining what he calls "authority through repetition" in a flood of state, seminational, and national butterfly books and checklists. As it turns out, many of these genera are polyphyletic. Burns explained how and why he has changed generic limits in *hesperia*, *Atalopedes*, *Poanes*, and *Paratrytone*, and noted certain biogeographic results of these changes.

Consistent with the time of year, there were few notes of entomological interest. A discussion centered on the insects living on the pitcher-plant, *Sarracenia purpurea*, and Howard Boyd observed that at least 16 species occur regularly in and around these plants. There were 33 members and guests in attendance.

Jon K. Gelhaus, Corresponding Secretary